

Andrew P. DUMAS

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WORK EXPERIENCE

- JULY 2012-PRESENT** | **Signal Processing Engineer, MIT LINCOLN LABORATORY, Lexington, MA**
Bioengineering Systems and Technologies
Develop algorithms for gait analysis using wearable inertial sensors. Data analysis on a wide range of biomedical projects involving real-time MRI of speech, auditory physiology, gait during load carriage, and thermal heat strain.
- JULY 2010-JUL. '12** | **Research Technologist, MASSACHUSETTS GENERAL HOSPITAL, Charlestown, MA**
Hemorrhagic Stroke Research Program and Athinoula A. Martinos Center for Biomedical Imaging
Conducted research investigating decreased vascular reactivity in Cerebral Amyloid Angiopathy using functional MRI to model hemodynamic response. Implemented algorithms in MATLAB for non-linear curve fitting, general linear modeling, and image processing.
- JUNE 2010-AUG. '10** | **Research Student, BETH ISRAEL DEACONESS MEDICAL CENTER, Boston, MA**
Cardiac MRI Department
Created and tested algorithms to map T1 in phantoms and in human cardiac tissue, with emphasis on algorithm speed and robustness as well as rapid imaging acquisition time.

EDUCATION

MA, BIOMEDICAL IMAGING Graduated AUG. 2010	Boston University , Boston, MA <i>School of Graduate Medical Sciences</i>
BS, BIOMEDICAL ENGINEERING Graduated MAY 2009 Member, <i>Alpha Eta Mu Beta</i> (Biomedical Engineer Honor Society)	Boston University , Boston, MA <i>College of Engineering</i>

RELEVANT COURSEWORK

Applied Bioinformatics	Biological & Environmental Acoustics	Biomedical Signal Measurement
Control Systems	Engineering Economics	Head and Neck Anatomy
Imaging Theory & Image Processing	Logic Design using Verilog	Methods of Functional Neuroimaging
Signals and Systems	Solid Biomechanics	Intellectual Assets

PROJECT EXPERIENCE

- SEP. '09-AUG. '10** | *MA Thesis*
Development of an Offline Tool for Susceptibility Weighted Image (SWI) Processing using MATLAB
Developed a tool using MATLAB to process MRI phase and magnitude images and output images with susceptibility weighted contrast. Tested the algorithm using human brain images acquired with custom SWI (T2*-weighted) sequences. Created a GUI to facilitate offline processing.
- SEP. '08-MAY '10** | *Senior Project*
Simulating Echolocation using Computational Models of Auditory Physiology
Collected ultrasonic echoes in response to a synthetic "chirp" characterizing common obstacles (such as chairs, tables, walls, etc.) using an ultrasonic emitter and binaural detectors to mimic echolocation. Developed algorithms to estimate object distance and azimuth and to classify object based on previous data.

COMPUTER & TECHNICAL SKILLS

PROGRAMMING: Matlab (GUI development, statistical analysis, machine learning, visualization), Mathematica, Perl, BASH shell scripting

IMAGING: MR Spectroscopy, fMRI Acquisition, FreeSurfer, FSL, SPM8, Siemens and Philips MRI Scanner operation, MRI Magnet Safety, NIH Human Subjects Certification

GENERAL COMPUTING: Linux/Unix, Subversion, Git